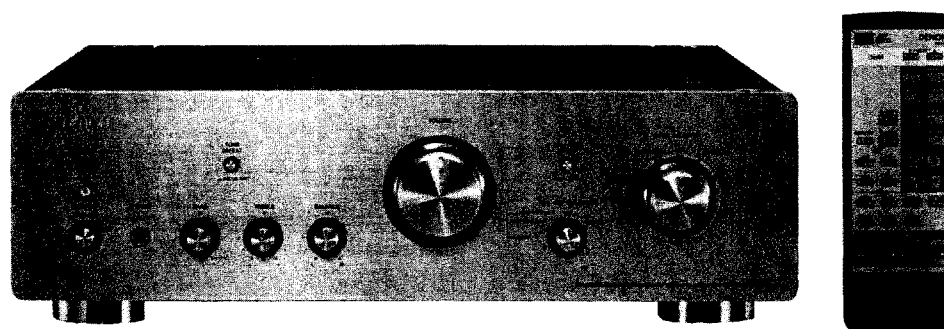


# DENON

Hi-Fi Stereo Pre-Amplifier


## SERVICE MANUAL MODEL PRA-S10 STEREO PRE-AMPLIFIER




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## NIPPON COLUMBIA CO., LTD.



**CAUTION**  
RISK OF ELECTRIC SHOCK  
DO NOT OPEN



**CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICE-ABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.**

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

**WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**

• **FOR U.S.A. & CANADA MODEL ONLY**

**CAUTION**

TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

• **POUR LE MODELE CANADIEN UNIQUEMENT**

**ATTENTION**

POUR PREVENIR LES CHOCX ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT. SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

• **NUR FÜR EUROPÄISCHE MODELLE**

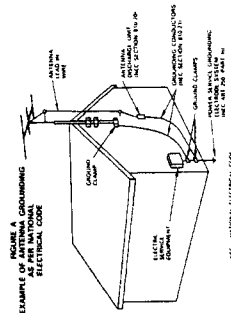
Konformitätserklärung

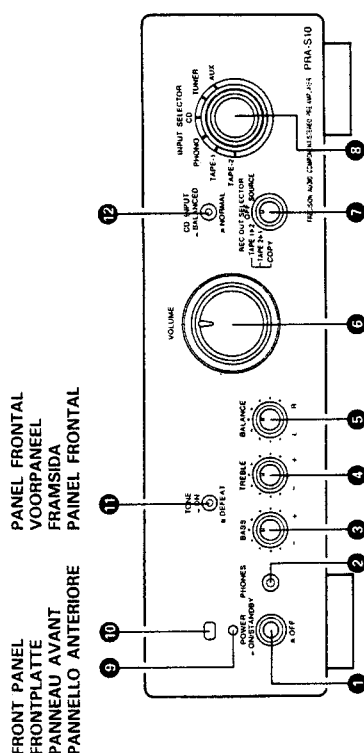
Die DENON Electronic GmbH  
Häkelstraße 32  
40880 Ratingen

Erklärt als Hersteller/Importeur, daß das in dieser Bedienungsanleitung beschriebene Gerät den Technischen Vorschriften für Ton- und Fernseh-Rundfunkempfänger nach der Amtsblattverfügung 868/1985 (Amtsblatt des Bundesministers für Post und Telekommunikation vom 31. 8. 1985) entspricht.

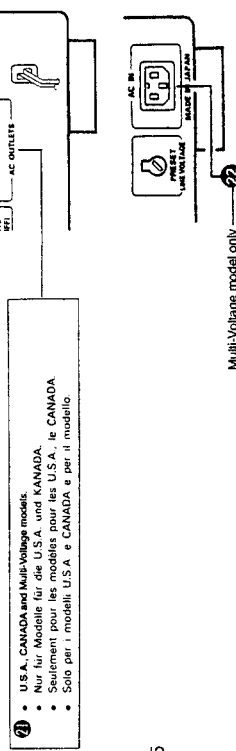
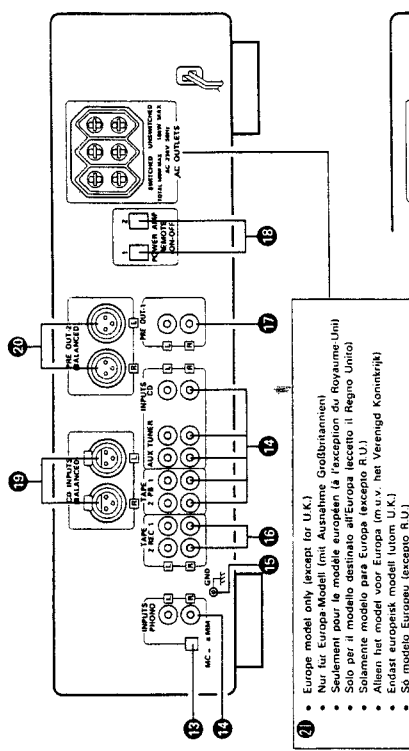
## SAFETY INSTRUCTIONS

1. Read Instructions - All the safety and operating instructions should be read before the appliance is operated.
2. Retain Instructions - The safety and operating instructions should be retained for future reference.
3. Heed Warnings - All warnings on the appliance and in the operating instructions should be adhered to.
4. Follow Instructions - All operating and use instructions should be followed.
5. Water and Moisture - The appliance should not be used near water - for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, and the like.
6. Carts and Stands - The appliance should be used only with a cart or stand that is recommended by the manufacturer.
- 6A. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.
7. Wall or Ceiling Mounting - The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
8. Ventilation - The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
9. Heat - The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
10. Power Sources - The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
11. Grounding or Polarization - Precautions should be taken so that the grounding or polarization means of an appliance is not defeated.
12. Power-Cord Protection - Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them; paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
13. Cleaning - The appliance should be cleaned only as recommended by the manufacturer.
14. Power Lines - An outdoor antenna should be located away from power lines.
15. Outdoor Antenna Grounding - If an outside antenna is connected to the receiver, be sure the antenna system is grounded so as to provide some protection against voltage surges, and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna-discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure A.
16. Nonuse Periods - The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
17. Object and Liquid Entry - Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
18. Damage Requiring Service - The appliance should be serviced by qualified service personnel when:
  - A. The power-supply cord or the plug has been damaged; or
  - B. Objects have fallen, or liquid has been spilled into the appliance; or
  - C. The appliance has been exposed to rain; or
  - D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
  - E. The appliance has been dropped, or the enclosure damaged.
19. Servicing - The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.





FRONT PANEL  
FRONTPLATTE  
Panneau AVANT  
Pannello Anteriore



**NOTE:**  
1. Mantenga siempre activado el interruptor de alimentación (POWER) en la unidad principal.  
2. Encienda y apague el equipo desde la unidad de control remoto.  
3. Cuando la unidad vaya a estar fuera de uso por un período prolongado de tiempo, desconecte el cable de alimentación.

**PRECAUCIÓN:**  
Si sólo el indicador de alimentación está encendido, significa que la alimentación de la unidad de control remoto está apagada. Extienda la alimentación de la unidad de control remoto.

**OPMERKING:**  
1. Zorg er altijd voor dat de stroomschakelaar (POWER) van het hoofdtelefoon in de ingeschakelde stand staat.  
2. Schakel de stroom in en uit m.b.v. de afstandsbediening.  
3. Trek het netkabel uit wanneer u denkt het toestel gedurende een lange periode niet te gebruiken.

**WAARSCHUWING:**  
Als enkel de spanningindicator brandt, betekent dit dat de spanning is uitgeschakeld met de afstandsbediening. Schakel de spanning in met de afstandsbediening.

**OBSERVERA:**  
1. Låt alltid strömbrytaren (POWER) på huvudentheten vara påslagen.  
2. Sätt in/ifrån strömmen med hjälp av fjärrkontrollen.  
3. Koppla loss riktkabeln om apparaten inte skall användas under lång tid.

**VARNING:**  
Om endast strömindikatorn lyser betyder det att strömmen har stängts av via fjärrkontrollen. När du sedan står på strömmen igen måste detta göras från fjärrkontrollen.

**NOTA:**  
1. Mantenga o interruptor da Corrente (POWER) na unidade principal sempre ligado.  
2. Ligue e desligue a corrente a partir da unidade de controle remoto.  
3. Desconecte o fio de força quando estiver não utilizar a unidade por longo tempo.

**PRECAUÇÃO:**  
Se apenas estiver iluminado o indicador de corrente, isto significa que a corrente foi desligada através da unidade de controle remoto. Ligue a corrente através da unidade de controle remoto.

**PRECAUCIONES PARA LA INSTALACION:**  
Deje al menos un espacio de 15 cm entre esta unidad y el amplificador de potencia o cualquier otro componente colocado abajo.

**VOORZORGSMAATREGELEN:**  
Laat tenminste 15 cm ruimte tussen dit toestel en de vermogensversterker of een ander onderdeel dat zich eronder bevindt.

**FÖRSIKTIGHETSÅTGÄRDER VID INSTALLATIONEN:**  
Lämna ett utrymme på minst 15 cm mellan denna apparat och effektor, statfärdar eller andra apparater, som ställs under apparaten.

**CUIDADOS NA INSTALAÇÃO:**  
Deixe um espaço de pelo menos 15 cm entre esta unidade e o amplificador ou qualquer outro componente colocado abaixo.

**NOTE:**  
1. Always keep the POWER switch on the main unit turned on.  
2. Turn the power on and off from the remote control unit.  
3. Unplug the power cord when you do not plan to use the unit for a long period of time.

**CAUTION:**  
If only the power indicator is lit, this means that the power is turned off from the remote control unit. Turn the power on from the remote control unit.

**HINWEIS:**  
1. Lassen Sie den Netzschalter (POWER) am Hauptgerät stets eingeschaltet.  
2. Schalten Sie den Strom mit dem Fernbedienungsgerät ein und aus.  
3. Trennen Sie das Netzkabel vom Netz ab, wenn Sie beabsichtigen, das Gerät über einen längeren Zeitraum hinweg nicht zu benutzen.

**VORSICHT:**  
Wenn nur die Netzspannung leuchtet, bedeutet dies, daß der Strom mit dem Fernbedienungsgerät ausgeschaltet worden ist. Schalten Sie den Strom mit dem Fernbedienungsgerät ein.

**REMARQUE:**  
1. S'assurer que le commutateur d'alimentation (POWER) sur l'unité principale soit toujours dans la position activée.  
2. Allumer et éteindre l'appareil avec la télécommande.  
3. Débrancher le cordon d'alimentation lorsque l'appareil ne sera pas utilisé pendant une longue période.

**ATTENTION:**  
Si seul l'indicateur d'alimentation est allumé, cela signifie que l'alimentation de la télécommande est coupée. Allumer l'alimentation de la télécommande.

**NOTA:**  
1. Tenete sempre l'interruttore della corrente (POWER) dell'unità principale nella posizione di attivazione.  
2. Accendere e spegnere la corrente usando il telecomando.  
3. Scollegate il cavo di alimentazione quando avete intenzione di non usare l'apparecchio per un lungo periodo.

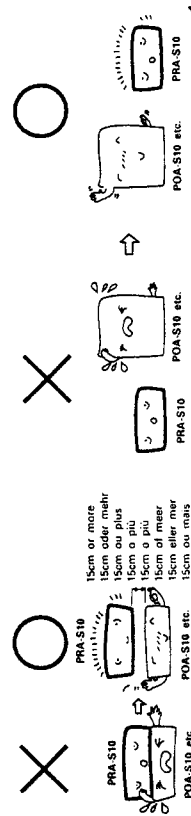
**AVISO:**  
Se resta acceso solamente l'indicatore di alimentazione, significa che l'unità è stata spenta dal telecomando. Accendete l'unità utilizzando il telecomando.

**PRECAUTIONS FOR INSTALLATION:**  
Leave at least 15 cm space between this unit and power amplifier or any other component placed below.

**SICHERHEITSMASSNAHMEN BEIM EINBAU:**  
Lassen Sie zwischen diesem Gerät und dem Leistungsverstärker bzw. einer anderen sich unter diesem Gerät befindlichen Komponente einen Zwischenraum von 15 cm.

**PRECAUTIONS D'INSTALLATION:**  
Laissez un espace d'au moins 15 cm entre cet appareil et l'amplificateur de puissance ou n'importe quel autre appareil placé en dessous.

**PRECAUZIONI PER L'INSTALLAZIONE:**  
Lasciate uno spazio di almeno 15 cm tra quest'unità e l'amplificatore di potenza oppure l'altro componente installato sotto la stessa.





## DESIGNATIONS AND FUNCTIONS OF PANEL CONTROLS

- 1 POWER**  
(Power Switch)  
When the power switch is turned ON (  $\rightarrow$  ), the Power indicator (  $\odot$  ) lights.  
When the power switch is turned ON, power is supplied to the unit. It takes a few seconds after the power is turned on for the unit to warm up. This is due to the built-in muting circuit that eliminates noise during the on/off operation.
- 2 PHONES**  
(Headphone Jack)  
This jack is used to plug in the headphones.  
(The PRE OUT output is turned off when the headphones are plugged in.)
- 3 BASS**  
(Bass Control)  
This knob is used to control the bass quality of the sound. When the knob is set at the center position, the frequency characteristics are flattened in the range below 1000 Hz. The bass is emphasized as the knob is moved off center to the right (  $\curvearrowright$  ), and reduced as it is moved to the left (  $\curvearrowleft$  ).
- 4 TREBLE**  
(Treble Control)  
This knob is used to control the treble quality of the sound. When the knob is set at the center position, the frequency characteristics are flattened in the range above 1000 Hz. The treble is emphasized as the knob is moved off center to the right (  $\curvearrowright$  ), and reduced as it is moved to the left (  $\curvearrowleft$  ).
- 5 BALANCE**  
(Balance Control)  
This knob is used to adjust the balance between the left and right channels. When it is set to the center position, the amplitude of the amplifier is equal on both sides. If there is a difference in the left and right channel output voltages for a cartridge, move the knob to the left and the right to adjust it. If the volume on the right side is too low, turn the knob to the right (  $\curvearrowright$  ). If the volume on the left side is too low, turn the knob to the left (  $\curvearrowleft$  ). This will achieve an even balance on the left and right sides.
- 6 VOLUME**  
(Volume Control)  
This knob controls the overall volume level.  
Turn the knob to the right (  $\curvearrowright$  ) to raise the volume and to the left (  $\curvearrowleft$  ) to lower it.
- 7 REC OUT SELECTOR**  
(Recording output selector)  
Use this to select the output source for recording onto a tape deck, etc.  
• **SOURCE:**  
Set to this position when recording. The recording output is the source selected with the CD INPUT switch (  $\odot$  ) and the INPUT SELECTOR (  $\odot$  ).  
• **OFF:**  
In this position, the recording output is turned off. For higher quality playback sound, we recommend keeping the selector at this position when not recording.

- 10 REMOTE SENSOR**  
(Remote Control Sensor)  
This sensor receives the infra-red light transmitted from the wireless remote control unit.  
For remote control, point the wireless remote control unit towards the sensor.
- 11 TONE**  
(Tone switch)  
The tone control function is operated by using the TONE switch.  
When the switch is set to DEFEAT (  $\blacksquare$  ), the transmission characteristic curve is flattened, and the positions of the BASS and TREBLE knobs have no effect.  
When the switch is pressed ON (  $\rightarrow$  ), tone control is enabled.  
(The level of BASS and TREBLE can be varied.)
- 12 CD INPUT**  
(CD input switch)  
Use this switch to select the INPUT SELECTOR (  $\odot$  ) CD input jacks.  
• **NORMAL (  $\blacksquare$  ):**  
The CD input jacks are selected.  
• **BALANCED (  $\rightarrow$  ):**  
The CD input (BALANCED) jacks are selected.
- 13 PHONO SELECTOR**  
(Cartridge Selection Switch)  
This switch is set according to the type of player cartridge to be used.  
• **MC (  $\rightarrow$  ):**  
Used when an MC (moving-coil) cartridge with an output of less than 0.5 mV is used.  
• **MM (  $\blacksquare$  ):**  
Used when an MM (moving-magnet) cartridge with an output of 2 mV or more is used.
- 14 INPUTS Terminals**  
These are input terminals for CD players, turntables, AM/FM tuners, tape decks or other playback components.
- 15 GND (ground) terminal**  
Connect the turntable's ground wire here.
- 16 TAPE REC (recording output) Terminals**  
These are recording output terminals for connection to tape decks.
- 17 PREOUT-1**  
(NORMAL output terminals)  
Connect these to the power amplifier's input terminals.
- 18 POWER AMP REMOTE**  
(REMOTE ON-OFF Terminals)  
These terminals are used for remote control of the power amplifier and/or active speaker system. A low-voltage DC current is emitted from the terminals to turn on the power of DENON power amplifier (models POA-S10, POA-800, etc.). The same control signal is output from both remote terminals.
- 19 CD INPUT (BALANCED) terminals**  
These are XLR input terminals for connecting a CD player or other playback component equipped with balanced outputs.  
The polarities of the pins are as follows:  
Pin 1: Ground (GND) Pin 2: Cold (  $-$  ) Pin 3: Hot (  $+$  )
- 20 PREOUT-2**  
(BALANCED output terminals)  
Connect these to the BALANCED input terminals of a power amplifier equipped for balanced input.  
The polarities of the pins are as follows:  
Pin 1: Ground (GND) Pin 2: Cold (  $-$  ) Pin 3: Hot (  $+$  )
- 21 AC OUTLETS**  
• **For U.S.A., Canada and Multi-Voltage models**  
AC outlets are used for connecting amplifier component units, such as tuner, turntable, tape deck, etc.  
• **SWITCHED (Total capacity: 120 W):**  
These outlets are turned ON/OFF when main power switch and POWER button on the Remote Control Unit is turned on/off.  
• **UNSWITCHED (Capacity: 240 W)**  
This outlet is always ON whether power switch is on or OFF.  
• **For Europe (except the U.K.) models.**  
AC outlets are used for connecting amplifier component units, such as tuner, turntable, tape deck, etc.  
• **SWITCHED (Total capacity: 100 W):**  
These outlets are turned ON/OFF when main power switch and POWER button on the Remote Control Unit is turned on/off.  
• **UNSWITCHED (Capacity: 100 W)**  
This outlet is always ON whether power switch is on or OFF.
- 22 AC IN (Multi-Voltage model only)**  
• Connect the included AC power cord here.

## LINE VOLTAGE (Voltage select switch)

- The desired voltage may be set with the VOLTAGE SELECTOR KNOB on the rear panel using a screw driver.
- Do not twist the VOLTAGE SELECTOR KNOB with excessive force. It may be damaged.
- If the voltage select switch does not turn smoothly, see qualified service-man.



## OPERATION

### PREPARATION

1. **CHECKING CONNECTIONS**
  - Make sure that all the connections are proper by referring to the back panel (Fig. 1).
  - Check the polarity (positive and negative) of connections, and the direction of stereo separation (right cord to right channel terminal, and left cord to left channel terminal).
  - Check the direction of pin cord connection.

### 2. SETTING OF EACH KNOB

- Turn the volume control knob counterclockwise, to minimum position.
- Set the rotary knob to center position.
- Set TONE switch to "ON" (—).

After checking the above items, turn on the power, the amplifier is set in the ready mode in a few seconds.

### PLAYING A RECORD

1. Set the INPUT SELECTOR switch to "PHONO".
2. Operate the turntable and play the record.
3. Turn the volume and tone controls to yield an appropriate volume and sound quality.

### PLAYBACK OF CD PLAYER (NORMAL)

1. Set the CD INPUT switch to NORMAL (—).
2. Set the INPUT SELECTOR switch to "CD".
3. Operate the CD player.
4. Turn the volume and tone controls to yield an appropriate volume and sound quality.

### PLAYBACK OF CD PLAYER (BALANCED)

1. Set the CD INPUT switch to BALANCED (—).
2. Set the INPUT SELECTOR switch to "CD".
3. Operate the CD player.
4. Turn the volume and tone controls to yield an appropriate volume and sound quality.

### RECEPTION OF RADIO PROGRAMS

1. Set the INPUT SELECTOR switch to "TUNER".
2. Operate the tuner to receive a radio program.
3. Turn the volume and tone controls to yield an appropriate volume and sound quality.

### CONNECTIONS OF AUDIO EQUIPMENT TO AUX TERMINALS

1. Set the INPUT SELECTOR switch to "AUX" Position.
2. Operate the Audio equipment Systems.
3. Turn the volume and tone controls to yield an appropriate volume and sound quality.

### PLAYBACK WITH TAPE DECK

1. Set the INPUT SELECTOR switch to "TAPE-1" or "TAPE-2".
2. Operate the Tape Deck.
3. Turn the volume and tone controls to yield an appropriate volume and sound quality.

### COPYING TAPES

(Refer to the tape deck's instructions.)

1. Select the tape deck using the REC OUT SELECTOR ②.
  - To record from the deck connected to the TAPE-1 jacks, set to the TAPE-1 ② position.
  - To record from the deck connected to the TAPE-2 jacks, set to the TAPE-2 ② position.
2. Set the tape deck onto which you want to record to the recording mode.
3. Set the tape deck from which you want copy to the play mode.

### RECORDING ONTO A TAPE DECK

(other than for copying tapes)

1. Select the source to be recorded using the INPUT SELECTOR ③ and the CD INPUT switch ④.
2. Set the REC OUT SELECTOR ② to the SOURCE position.
3. Set the tape deck onto which you want to record to the recording mode.
4. Play the source to be recorded.  
(Refer to the tape deck's instructions.)

### NOTE

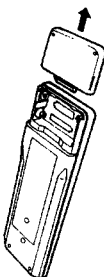
- This amplifier has a full memory back-up system. When the power is turned on, INPUT SELECTOR ③ is set to the last mode set before the power was turned off.

## REMOTE CONTROL OPERATION

The accessory Remote Control Unit is used to control the amplifier from a convenient distance.

### (1) Inserting the Dry Cell Batteries

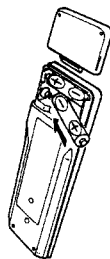
1. Remove the battery cover on the Remote Control Unit.



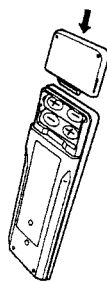
### Notes on Battery Usage

- RC-185 uses the size R6P (AA) dry cell batteries.
- The batteries will need to be replaced approximately once a year. This will depend upon how often the Remote Control Unit is used.
- If, in less than a year, from the time new batteries were inserted, the Remote Control Unit fails to operate the Amplifier from a nearby position, it is time to replace the batteries.
- Insert the batteries properly, following the polarity diagram inside the battery compartment.
- Batteries are prone to damage and leakage. Therefore:
  - Do not mix new batteries with used ones.
  - Do not mix different types of batteries.
  - Do not jumper opposite poles of the batteries, expose them to heat, break them open, nor expose them to open fire.
- If the batteries have leaked, remove any traces of battery fluid from the battery compartment wiping thoroughly with a dry cloth. Then insert new batteries.

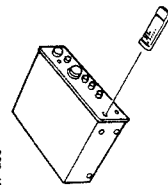
2. Insert two dry cell batteries as shown in the diagram on the battery supply unit.



3. Replace the battery cover.



### (2) Directions for use



- Operate the Remote Control Unit while pointing it towards the Remote Control Sensor on the Amplifier as shown in the diagram on the left.
- The Remote Control Unit can be used at distances up to about 8 meters in a straight line from the amplifier. This distance will decrease if there are obstructions blocking the infra red light transmission or if the Remote Control Unit is not directed straight at the amplifier.

### Note on operation

- Do not press the operating buttons on the Amplifier and the Remote Control Unit at the same time. This will cause misoperation.
- Operation of the Remote Control Unit will become less effective or erratic if the infrared Remote Control Sensor on the Amplifier is exposed to strong light or if there are obstructions between the Remote Control Unit and the sensor.
- In case you operate a VCR, TV or other components by remote control, do not operate buttons on two different remote control units at the same time. This will cause misoperation.

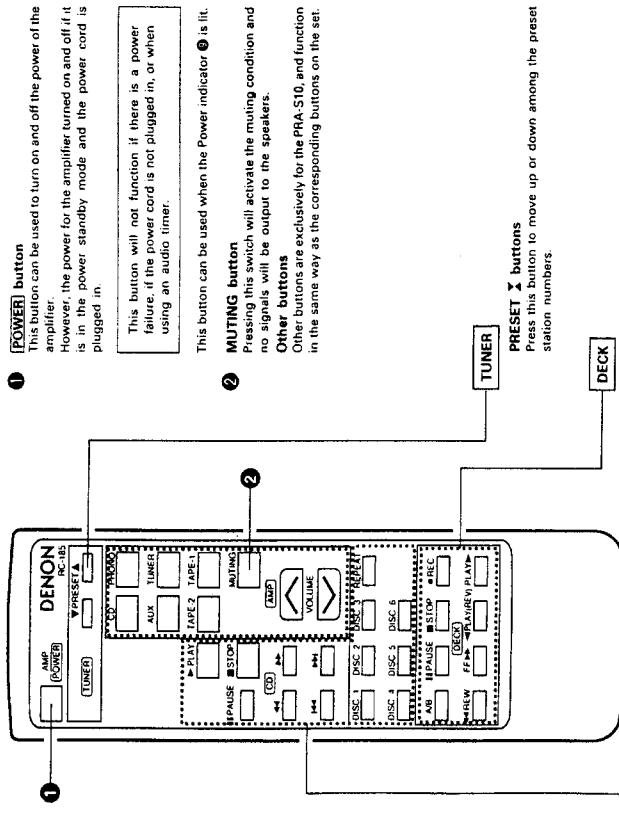
**Besides being able to operate the PRA-S10 Pre-amplifier with this Remote Control Unit, you can also operate a DENON cassette deck and CD player from this handy full-system Remote Control Unit.**

### Remote control section

#### Full-system Remote Control Unit

The full-system Remote Control Unit operates all major functions of the Amplifier, such as function switching, volume control. But that's not all! The same control pad can also control the major functions of a DENON CD player and cassette deck and tuner when combined with the PRA-S10 to create a remarkably ergonomic and versatile DENON system with all the quality sound reproduction that the devoted audiophile expects.

# Remote Control Unit RC-185 supplied with the PRA-S10



**1 [POWER] button**  
This button can be used to turn on and off the power of the amplifier.  
However, the power for the amplifier turned on and off if it is in the power standby mode and the power cord is plugged in.

This button will not function if there is a power failure, if the power cord is not plugged in, or when using an audio timer.

This button can be used when the Power indicator **●** is lit.

**2 [MUTING] button**  
Pressing this switch will activate the muting condition and no signals will be output to the speakers.

**Other buttons**  
Other buttons are exclusively for the PRA-S10, and function in the same way as the corresponding buttons on the set.

**PRESET  $\Delta$  buttons**  
Press this button to move up or down among the preset station numbers.

▶ PLAY	▶ PLAY (REV)	▶ PLAY (REV) button
■ STOP	■ STOP	STOP button
◀ REW	◀ REW	REWIND button
▶ FF	▶ FF	FF button
● REC	● REC	Refer to the operating instructions of your DENON tape deck
■ PAUSE	■ PAUSE	A/B DECK SELECT button

▶ PLAY	▶ PLAY button
■ STOP	STOP button
◀ REW	REWIND button
▶ FF	FF button
● REC	Refer to the operating instructions of your DENON tape deck
■ PAUSE	A/B DECK SELECT button

The RC-185 Remote Control Unit can control CD players and cassette decks manufactured by DENON.  
Note that operation may not be possible for some models.  
Buttons are conveniently separated into groups, each group controlling one specific component. The groups are AMP, CD, DECK and TUNER.  
For details on operating other components, refer to the operating instructions for the CD player and/or cassette deck.

**CAUTION:**  
• If the power is turned off with the Remote Control Unit, the set is switched to the power stand-by state. If you are absent for a long period of time, unplug the power cord.  
• Only the power indicator **●** lights red when in the power stand-by mode.  
• You may experience erratic operation of the Remote Control Unit if it is operated in fluorescent light and direct sunlight, in particular if this light strikes the Remote Control Sensor on the Amplifier. However, this is not a malfunction, and if this should happen, simply protect the sensor against such light.

## SPECIFICATIONS

<b>Equalizer Amplifier</b> (PHONO IN - REC OUT) Input Sensitivity / Impedance: PHONO MM: 25 mV / 47k $\Omega$ / 40k $\Omega$ PHONO MC: 100 mV / 100 $\Omega$ / 10k $\Omega$ PHONO MM: 180 mV / 1k $\Omega$ 10 V / 150 mV  <b>Max. input level:</b> Max. output / rated output: Total harmonic distortion: (1 kHz, rated output) Less than 0.001% <b>RIAA deviation:</b> Signal-to-noise ratio (A-weighted) (at 0.5 mV input) (at 5 mV input)  <b>High Level Amplifier</b> (AUX IN - PRE OUT: 1) Input terminals: Tape input / output terminal: Tape output / input terminal: Input sensitivity / Impedance: 180 mV / 20k $\Omega$ / 40k $\Omega$ <b>Remote control system:</b> (Balanced out) Total harmonic distortion: (1 kHz, 1 V output) Signal-to-noise ratio (A-weighted): 0.007% <b>Frequency response:</b> 5 Hz - 300 kHz +0.2 dB, -3 dB 10 kHz $\pm$ 8 dB 100 kHz $\pm$ 8 dB <b>Tone control:</b> TREBLE BASS  <b>General</b> Remote ON / OFF terminals: Output 42  <b>Power supply</b> U.S.A. and CANADA models: Multi-voltage mode: Europe model: AC outlets: Switched $\times$ 2: total 120 W Unswitched $\times$ 1: 240 W (U.S.A., CANADA and Multi-voltage models) Switched $\times$ 2: total 100 W Unswitched $\times$ 1: 100 W (For Europe model except the U.K. model)  <b>Power consumption:</b> U.S.A., CANADA and Multi-voltage models: Europe model: Dimensions (W $\times$ H $\times$ D) Weight:  <b>Remote Control Unit</b> Remote control system: Infrared pulse system <b>Power supply:</b> 3 V DC two size R6P ("AA") <b>External dimensions:</b> Weight: (includes batteries)	PHONO MC: 0.2 mV / 100 $\Omega$ / ohms PHONO MM: 25 mV / 47k $\Omega$ / 40k $\Omega$ PHONO MC: 100 mV / 100 $\Omega$ / 10k $\Omega$ PHONO MM: 180 mV / 1k $\Omega$ 10 V / 150 mV  PHONO MC: 20 kHz - 20 kHz +0.3 dB PHONO MM: 20 kHz - 20 kHz +0.2 dB  PHONO MC: 79 dB PHONO MM: 96 dB  CD, TUNER, AUX, CD (BALANCED) TAPE 1, TAPE 2 180 mV / 20k $\Omega$ / 40k $\Omega$ PRE OUT: 1: 1 V / 20k $\Omega$ / ohms PRE OUT: 2: 2 V / 600 $\Omega$ / ohms 0.007% 107 dB 5 Hz - 300 kHz +0.2 dB, -3 dB 10 kHz $\pm$ 8 dB 100 kHz $\pm$ 8 dB  AC 120V 60Hz AC 100-240V 50/60Hz AC 230 V, 50 Hz  15 W 15 W 434 $\times$ 135 $\times$ 361 (17.3 / 5.3" $\times$ 5.3" / 11.3" $\times$ 14.2" / 32") 7.1 kg (15 lbs 5 oz) RC-185  60W $\times$ 177(H) $\times$ 180(D) mm (2.37 / 6.9" $\times$ 6.97 / 27.6" $\times$ 6.97 / 27.6") 120 g (about 4 oz) (includes batteries)
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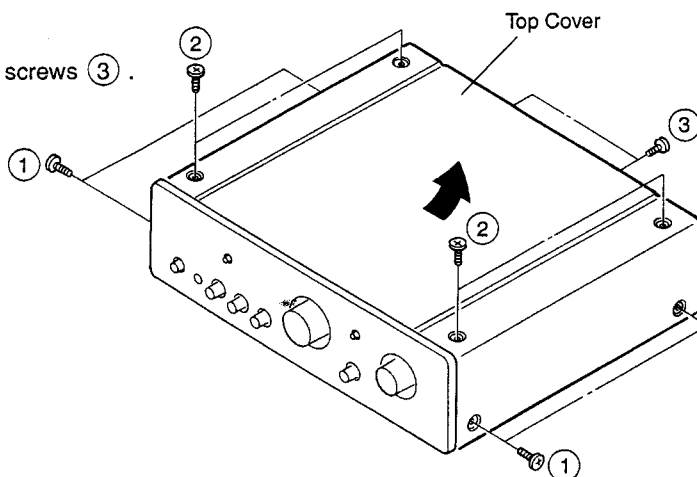
• Specifications and contents are subject to change without notice for purposes of improvement.

## DISASSEMBLY

(For reassemble reverse disassembly.)

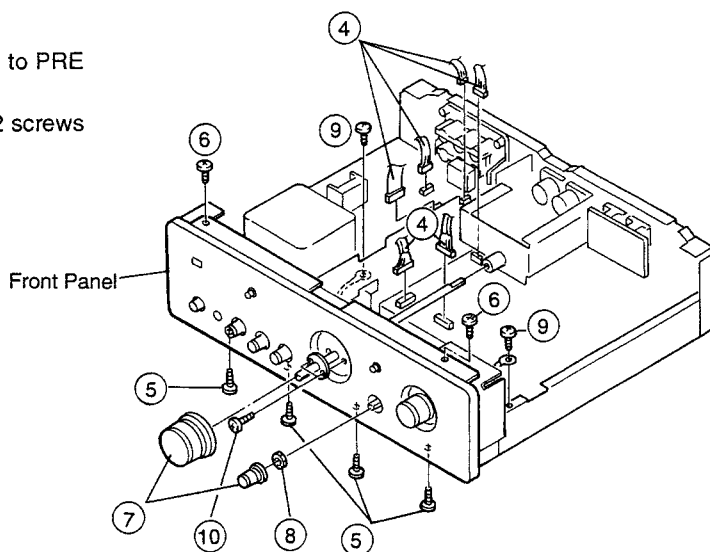
### 1. Top Cover

- (1) Remove 4 screws ① on the both sides.
- (2) Remove 4 screws ② on the top side and 2 rear screws ③.
- (3) Detach Top Cover in arrow direction.



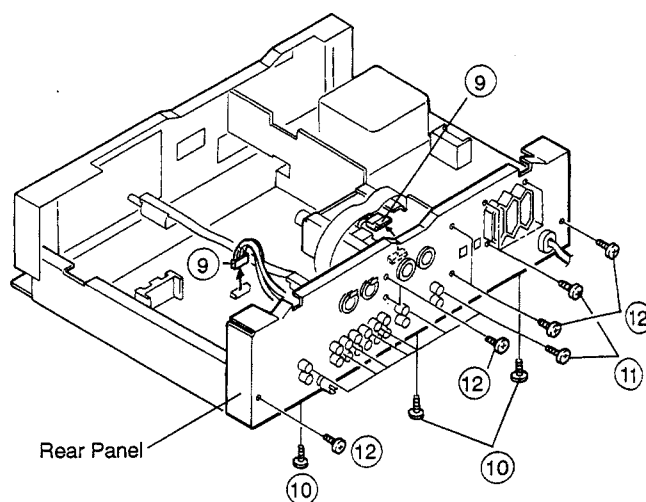
### 2. Front Panel

- (1) Remove connectors ④ which are connected to PRE AMP P.W.B. and Control P.W.B..
- (2) Remove 4 screws ⑤ on the below side and 2 screws ⑥ on the upper side.
- (3) Remove 2 screws ⑨ on the 3T Lug.
- (4) Pull out 2 Knobs ⑦ and nut ⑧.
- (5) Remove 2 screws ⑩ on the Front Panel.
- (6) Pull out Knob Shaft.



### 3. Rear Panel

- (1) Remove connectors ⑨ which are connected to PRE AMP P.W.B. and PRE COUT-2 P.W.B..
- (2) Remove 3 screws ⑩ on the bottom side, remove ⑪ screws ⑪ and 6 screws ⑫.
- (3) Detach the Rear Panel.





## METHOD OF ADJUSTMENTS

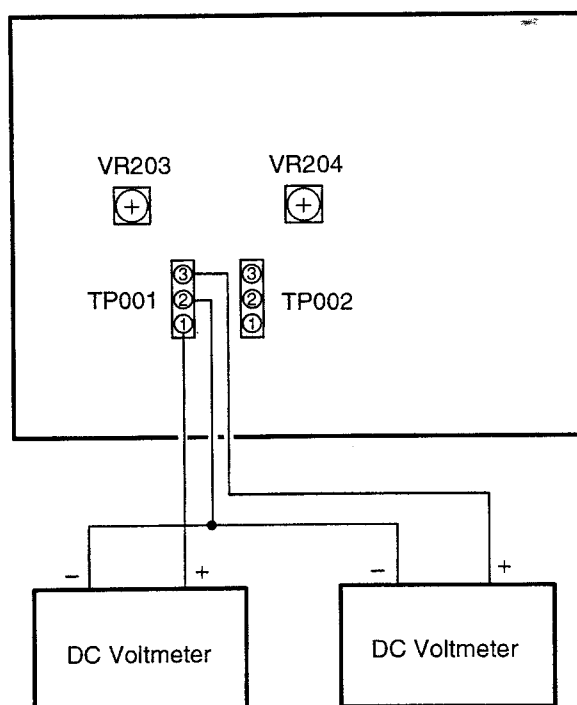
### Output Offset Voltage

Connect a DC voltmeter respectively to Pin 1 and Pin 3 of TP001 (Pin 2: GND) and set the master volume at minimum (extremely left).

Rotate VR203 left or right and adjust the difference of DC voltmeter's absolute value at Pin 1 and Pin 3 for less than 100mV.

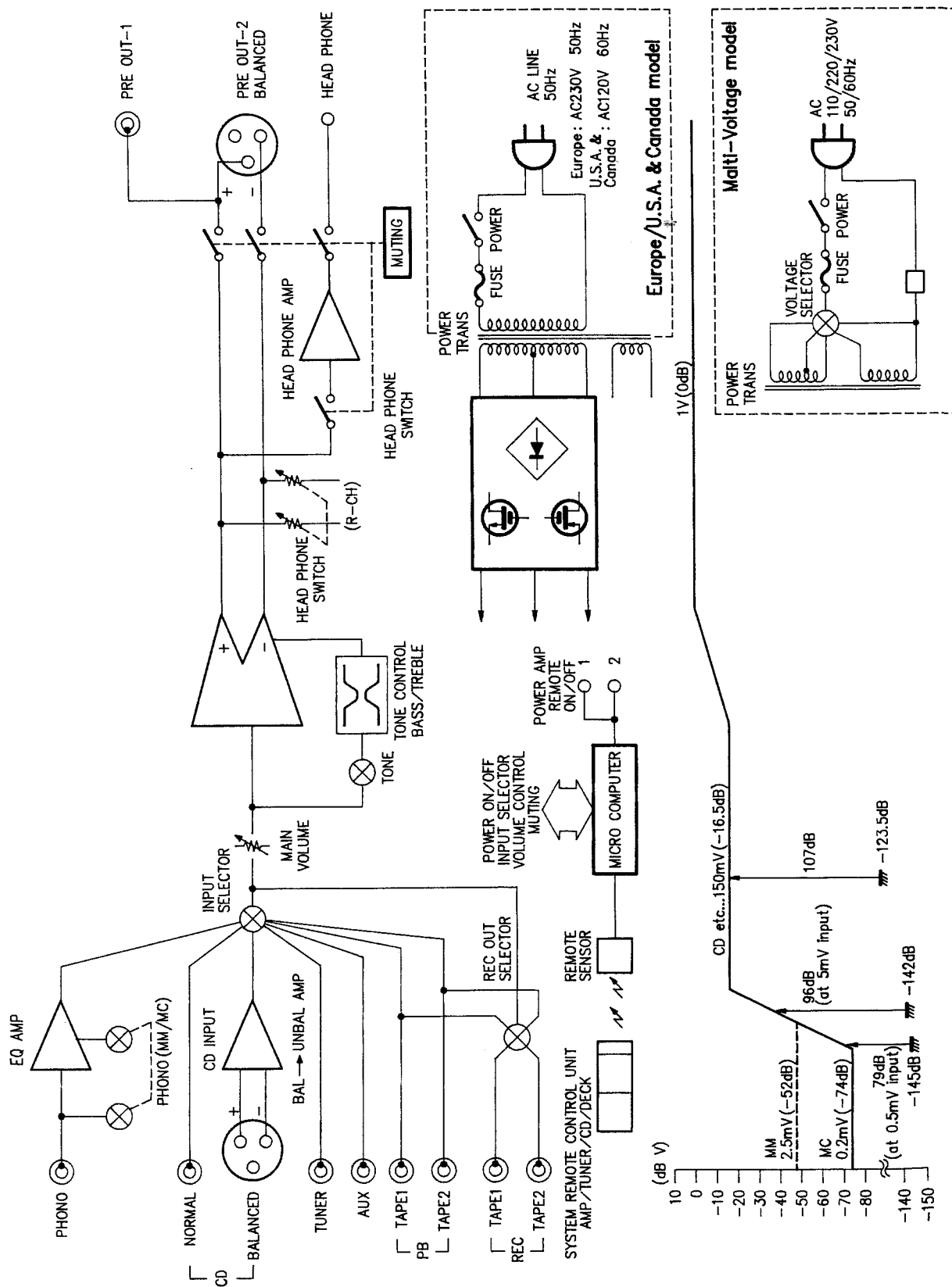
Connect the DC voltmeter to TP002 and perform the same manner to adjust R-ch with VR204.

KU-9309-1



**Note:** Be sure to connect an oscillation prevention resistor (1kohm ~ 10kohm) at the tip of DC voltmeter to be connected TP001 and TP002.

## BLOCK / LEVEL DIAGRAM



## NOTE FOR PARTS LIST

- Part indicated with the mark "●" are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film  $\pm 5\%$ , 1/4W Type in the P.W.Board parts list. (Refer to the Schematic Diagram for those parts.)

## WARNING:

Parts marked with this symbol  have critical characteristics.  
Use ONLY replacement parts recommended by the manufacturer.

## ● Resistors

Ex.: RN 14K 2E 182 G FR  
Type Shape Power Resistance Allowable error Others

RD : Carbon	2B : 1/8W	F : $\pm 1\%$	P : Pulse-resistant type
RC : Composition	2E : 1/4W	G : $\pm 2\%$	NL : Low noise type
RS : Metal oxide film	2H : 1/2W	J : $\pm 5\%$	NB : Non-burning type
RW : Winding	3A : 1W	K : $\pm 10\%$	FR : Fuse-resistor
RN : Metal film	3D : 2W	M : $\pm 20\%$	F : Lead wire forming
RK : Metal mixture	3F : 3W		
	3H : 5W		

## ● Resistance

1 8 2  $\Rightarrow$  1800 ohm = 1.8 kohm  
Indicates number of zeros after effective number.  
2-digit effective number.

• Units: ohm

1 R 2  $\Rightarrow$  1.2 ohm  
1-digit effective number.  
2-digit effective number, decimal point indicated by R.

• Units: ohm

## ● Capacitors

Ex.: CE 04W 1H 2R2 M BP  
Type Shape Dielectric Capacity Allowable error Others

CE : Aluminum foil electrolytic	0J : 6.3V	F : $\pm 1\%$	HS : High stability type
CA : Aluminum solid electrolytic	1A : 10V	G : $\pm 2\%$	BP : Non-polar type
CS : Tantalum electrolytic	1C : 16V	J : $\pm 5\%$	HR : Ripple-resistant type
CC : Film	1E : 25V	K : $\pm 10\%$	DL : For charge and discharge frequency
CK : Ceramic	1V : 35V	M : $\pm 20\%$	HF : For assuring high frequency
CC : Ceramic	1H : 50V	Z : $\pm 80\%$	U : UL part
CP : Oil	2A : 100V	-20%	C : CSA part
CM : Mica	2B : 125V	P : $\pm 100\%$	W : UL-CSA type
CF : Metallized	2C : 160V	-0%	F : Lead wire forming
CH : Metallized	2D : 200V	C : $\pm 0.25\text{pF}$	
	2E : 250V	D : $\pm 0.5\text{pF}$	
	2H : 500V	= : Others	
	2J : 630V		

## ● Capacity (electrolyte only)

2 2 2  $\Rightarrow$  2200 $\mu\text{F}$   
Indicates number of zeros after effective number.  
2-digit effective number.

• Units:  $\mu\text{F}$ .

2 R 2  $\Rightarrow$  2.2 $\mu\text{F}$   
1-digit effective number.  
2-digit effective number, decimal point indicated by R.

• Units:  $\mu\text{F}$ .

## ● Capacity (except electrolyte)

2 2 2  $\Rightarrow$  2200pF = 0.0022 $\mu\text{F}$   
(More than 2) — Indicates number of zeros after effective number.  
2-digit effective number.










• Units: pF.

2 2 1  $\Rightarrow$  220pF  
(0 or 1) — Indicates number of zeros after effective number.  
2-digit effective number.

• Units: pF.

• When the dielectric strength is indicated in AC, "AC" is included after the dielectric strength value.

PRINTED WIRING BOARD PARTS LIST  
KU-9309B PRE AMP UNIT

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC101	263 0081 015	IC NJM4558DX	
IC151	263 0284 003	IC M5219P	
IC351,352	263 0594 007	IC NJM2068DAC	
IC401	263 0995 004	IC NJM4556AD	
TR001	273 0379 902	Transistor 2SC3792-AA	
TR003	275 0090 009	Transistor 2SK1668	
TR004	275 0089 007	Transistor 2SJ248	
TR005	273 0198 918	Transistor 2SC1815(BL)	
TR006,007	271 0102 924	Transistor 2SA1015(GR)	
TR009,010	269 0025 901	Transistor RN1202(10K-10K)	
TR048	273 0198 918	Transistor 2SC1815(BL)	
TR101~108	275 0038 029	Transistor 2SK369(GR)	
TR201~204	275 0038 029	Transistor 2SK369(GR)	
TR205~208	271 0102 924	Transistor 2SA1015(GR)	
TR209~212	273 0198 918	Transistor 2SC1815(BL)	
TR213~216	271 0102 924	Transistor 2SA1015(GR)	
TR217~220	273 0198 918	Transistor 2SC1815(BL)	
TR221,222	271 0102 924	Transistor 2SA1015(GR)	
TR223~226	271 0102 921	Transistor 2SC1815(BL)	
TR227~230	271 0102 924	Transistor 2SA1015(GR)	
TR231~234	271 0102 921	Transistor 2SC1815(BL)	
TR235,236	271 0102 924	Transistor 2SA1015(GR)	
TR401,402	269 0107 900	Transistor RN1241(A/B)	
TR403	269 0024 902	Transistor RN2201(4.7K-4.7K)	
D001~010	276 0553 905	Diode 1SR35-200A	
D011~013	276 0432 903	Diode 1SS270A	
D101,102	276 0432 903	Diode 1SS270A	
D151	276 0432 903	Diode 1SS270A	
D154~157	276 0432 903	Diode 1SS270A	
D251,252	276 0432 903	Diode 1SS270A	
D401	276 0432 903	Diode 1SS270A	
ZD001,002	276 0482 908	Zener Diode HZS27-1	
ZD003	276 0458 903	Zener Diode HZSSA-1	
ZD004	276 0355 938	Zener Diode HZ9LA-2	
ZD201,202	276 0624 902	Zener Diode MTZJ2.0A	
ZD205,206	276 0477 900	Zener Diode HZS16-1	
ZD351	276 0452 909	Zener Diode HZS3A-1	
ZD353	276 0452 909	Zener Diode HZS3A-1	
ZD401,402	276 0452 909	Zener Diode HZS3A-1	
RESISTORS GROUP (Not included Carbon Film $\pm 5\%$ 1/4W)			
 R007,007	244 2055 896	Metal oxide 1.2kohm 1W	RS14B3A122JNBS(S)
R009	245 2044 900	Metal film 100ohm 1/4W	RN14K2E101G
R010	245 2068 902	Metal film 1kohm 1/4W	RN14K2E102G
R011	245 2074 909	Metal film 1.8kohm 1/4W	RN14K2E182G
R012	245 2090 909	Metal film 8.2kohm 1/4W	RN14K2E822G
R013	245 2092 907	Metal film 10kohm 1/4W	RN14K2E103G
R014,015	245 2092 907	Metal film 10kohm 1/4W	RN14K2E103G
 R017,018	241 2377 907	Carbon 100ohm 1/4W	RD14B2E101JNBS
R101,102	245 2066 904	Metal film 820ohm 1/4W	RN14K2E821G
R103,104	245 2068 902	Metal film 1kohm 1/4W	RN14K2E102G
R109,110	245 2020 908	Metal film 10ohm 1/4W	RN14K2E100G
 R121,122	244 2051 829	Metal oxide 820ohm 1W	RS14B3A821JNBS(S)
R137,138	245 2052 905	Metal film 220ohm 1/4W	RN14K2E221G
R139,140	245 2060 900	Metal film 470ohm 1/4W	RN14K2E471G
R201,202	245 2116 906	Metal film 100kohm 1/4W	RN14K2E104G
R205,206	245 2068 902	Metal film 1kohm 1/4W	RN14K2E102G
 R209~212	241 2378 904	Carbon 180ohm 1/4W	RD14B2E181JNBS
R213~216	245 2065 905	Metal film 750ohm 1/4W	RN14K2E751G
 R218,220	241 2375 907	Carbon 10ohm 1/4W	RD14B2E100JNBS
R221,222	245 2098 901	Metal film 18kohm 1/4W	RN14K2E183G
 R223,224	241 2378 946	Carbon 270ohm 1/4W	RD14B2E271JNBS
R225,226	245 2076 907	Metal film 2.2kohm 1/4W	RN14K2E222G
 R227~230	241 2378 933	Carbon 240ohm 1/4W	RD14B2E241JNBS
R231~234	245 2044 900	Metal film 100ohm 1/4W	RN14K2E101G
R235~242	245 2092 907	Metal film 10kohm 1/4W	RN14K2E103G
 R243~250	241 2375 907	Carbon 10ohm 1/4W	RD14B2E100JNBS
R251~254	245 2052 905	Metal film 220ohm 1/4W	RN14K2E221G
R255~258	245 2041 903	Metal film 75ohm 1/4W	RN14K2E750G
R259~262	245 2116 906	Metal film 100kohm 1/4W	RN14K2E104G
R309,310	245 2111 901	Metal film 62kohm 1/4W	RN14K2E623G
R311,312	245 2092 907	Metal film 10kohm 1/4W	RN14K2E103G
R313,314	245 2072 901	Metal film 1.5kohm 1/4W	RN14K2E152G
R335,336	245 2111 901	Metal film 62kohm 1/4W	RN14K2E623G
R351,352	245 2055 902	Metal film 300ohm 1/4W	RN14K2E301G
R353,354	245 2072 901	Metal film 1.5kohm 1/4W	RN14K2E152G
R357~360	245 2092 907	Metal film 10kohm 1/4W	RN14K2E103G
R361,362	245 2076 907	Metal film 2.2kohm 1/4W	RN14K2E222G
R363~366	245 2084 902	Metal film 4.7kohm 1/4W	RN14K2E472G
R367,368	245 2092 907	Metal film 10kohm 1/4W	RN14K2E103G
R401,402	245 2084 902	Metal film 4.7kohm 1/4W	RN14K2E472G
 R415,416	244 2051 958	Metal oxide 220ohm 1W	RS14B3A221JNBS(S)
R998	245 2116 906	Metal film 100kohm 1/4W	RN14K2E104G
VR101	211 9128 004	Variable 50kohm	V2720V20FA503
VR203,204	211 6075 011	Semi Fixed Resistor 100ohm	V06PB101(Cermet)

Ref. No.	Part No.	Part Name	Remarks	Ref. No.	Part No.	Part Name	Remarks
VR301	211 9113 022	Variable 30kohm	V0920V20FC303K	C210~214	254 4313 918	Electrolytic 10μF/50V	CE04W1H100M(ASF)
VR302	211 9113 035	Variable 5kohm	V0920V20FC502K	C215~218	255 4199 973	Film 0.01μF/50V	CQ92M1H103J(MRZ)
VR303	211 9127 005	Variable 20kohm	V0920V20FS203-	C221~228	254 4313 950	Electrolytic 100μF/50V	CE04W1H101M(ASF)
CAPACITORS GROUP				C233,234	254 4256 907	Electrolytic 10μF/25V	CE04W1E100M
C005	256 1042 903	Film 0.1μF/250V	CF93A2E104K	C301,302	255 1264 908	Film 1000pF/50V	CQ93M1H102J(B)
C006	254 4260 951	Electrolytic 2.2μF/50V	CE04W1H2R2M	C305,306	254 4260 948	Electrolytic 1μF/16V	CE04W1H010M
C007,008	254 4313 727	Electrolytic 2200μF/50V	CE04W1H222M(ASF)	C307,308	255 1264 937	Film 1800pF/50V	CQ93M1H182J(B)
C009	254 4261 921	Electrolytic 100μF/50V	CE04W1H101M	C309,310	255 1265 949	Film 0.012μF/50V	CQ93M1H123J(B)
C010	253 4535 955	Ceramic 5pF/50V	CC45SL1H050C	C311,312	256 1034 953	Film 0.068μF/50V	CF93A1H683J
C011~014	254 4263 987	Electrolytic 10μF/100V	CE04W2A100M	C313,314	254 4260 935	Electrolytic 0.47μF/16V	CE04W1HR47M
C015,016	254 4261 918	Electrolytic 47μF/50V	CE04W1H470M	C333,304	256 1034 995	Film 0.15μF/50V	CF93A1H154J
C017,018	255 4199 902	Film 0.1μF/50V	CQ92M1H104J(MRZ)	C351	254 4313 963	Electrolytic 1μF/50V	CE04W1H010M(ASF)
C019	254 4313 918	Electrolytic 10μF/50V	CE04W1H100M(ASF)	C353	254 4313 963	Electrolytic 1μF/50V	CE04W1H010M(ASF)
C020	253 4535 955	Ceramic 5pF/50V	CC45SL1H050C	C355	254 4313 918	Electrolytic 10μF/50V	CE04W1H100M(ASF)
C021,022	254 4313 950	Electrolytic 100μF/50V	CE04W1H101M(ASF)	C357	254 4313 918	Electrolytic 10μF/50V	CE04W1H100M(ASF)
C023,024	255 4199 902	Film 0.1μF/50V	CQ92M1H104J(MRZ)	C359	255 4199 902	Film 0.1μF/50V	CQ92M1H104J(MRZ)
C025	253 4535 955	Ceramic 5pF/50V	CC45SL1H050C	C361	255 4199 902	Film 0.1μF/50V	CQ92M1H104J(MRZ)
C027~232	255 4235 934	Film 0.01μF/100V	CQ93P2A103J(NH)	C363,364	254 4313 918	Electrolytic 10μF/50V	CE04W1H100M(ASF)
C029	253 1146 907	Ceramic 0.01μF/50V	CK45F1H103Z	C365,366	253 4537 982	Ceramic 56pF/50V	CC45SL1H560J
C054	254 3055 918	Electrolytic 10μF/35V	CE04D1V100MBP	C367,368	253 4536 909	Ceramic 10pF/50V	CC45SL1H100D
C055	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103Z	C369,370	254 4313 918	Electrolytic 10μF/50V	CE04W1H100M(ASF)
C090	254 4260 906	Electrolytic 0.1μF/50V	CE04W1H0R1M	C371,372	253 4536 983	Ceramic 22pF/50V	CC45SL1H220J
C091	254 4258 905	Electrolytic 4.7μF/35V	CE04W1V4R7M	C373,374	253 4537 924	Ceramic 33pF/50V	CC45SL1H330J
C100	254 4256 907	Electrolytic 10μF/25V	CE04W1E100M	C375,376	253 4536 983	Ceramic 22pF/50V	CC45SL1H220J
C101~104	255 4217 907	Film 100pF/50V	CQ09P1H101J	C377,378	254 3054 935	Electrolytic 47μF/25V	CE04D1E470MBP
C107,108	255 1251 940	Film 4700pF/50V	CQ93M1H472J(MRZ)	C401,402	254 4260 948	Electrolytic 1μF/16V	CE04W1H010M
C111,112	254 4256 949	Electrolytic 100μF/25V	CE04W1E101M	C403,404	253 4536 983	Ceramic 22pF/50V	CC45SL1H220J
C113	255 4199 902	Film 0.1μF/50V	CQ92M1H104J(MRZ)	C405	254 4256 907	Electrolytic 10μF/25V	CE04W1E100M
C115	255 4199 902	Film 0.1μF/50V	CQ92M1H104J(MRZ)	C407	254 4256 907	Electrolytic 10μF/25V	CE04W1E100M
C117,118	254 4261 918	Electrolytic 47μF/50V	CE04W1H470M	C409,410	254 3054 935	Electrolytic 47μF/25V	CE04D1E470MBP
C119,120	254 3055 918	Electrolytic 10μF/35V	CE04D1V100MBP	C411,412	255 4199 973	Film 0.01μF/50V	CQ92M1H103J(MRZ)
C121,122	255 4199 915	Film 0.12μF/50V	CQ92M1H124J(MRZ)	C413	254 4260 948	Electrolytic 1μF/16V	CE04W1H010M
C123,124	255 4223 988	Film 0.033μF/50V	CQ92M1H333J(MRZ)	C415,416	254 4260 948	Electrolytic 1μF/16V	CE04W1H010M
C125,126	255 4219 905	Film 680pF/50V	CQ09P1H681J	C417	254 4258 905	Electrolytic 4.7μF/35V	CE04W1V4R7M
C127,128	255 1251 940	Film 4700pF/50V	CQ92M1H472J(MRZ)	C418	254 4256 907	Electrolytic 10μF/25V	CE04W1E100M
C151~154	255 4217 907	Film 100pF/50V	CQ09P1H101J	OTHERS PARTS GROUP			
C155,156	254 4256 907	Electrolytic 10μF/25V	CE04W1E100M	△ F-005,006	206 1015 003	Fuse 500mA	Europe Model
C157,158	255 4217 907	Film 100pF/50V	CQ09P1H101J	△ F-005,006	206 1057 029	Fuse 500mA (125V)	Multi-Voltage Model
C159,160	254 3055 918	Electrolytic 10μF/35V	CE04D1V100MBP	△ F-005,006	206 1039 021	Fuse 500mA (125V)	U.S.A. & Canada Model
C161	255 4199 902	Film 0.1μF/50V	CQ92M1H104J(MRZ)	HP401	204 8480 004	Head phon Jack	
C163	255 4199 902	Film 0.1μF/50V	CQ92M1H104J(MRZ)	L-101~104	235 9003 002	FTZ Choke Coil	
C192,193	254 4258 905	Electrolytic 4.7μF/35V	CE04W1V4R7M	RL101~107	214 0127 003	Relay	RY-12W
C200	254 4256 907	Electrolytic 10μF/25V	CE04W1E100M	RL201,202	214 0127 003	Relay	RY-12W
C201,202	254 4313 963	Electrolytic 1μF/50V	CE04W1H010M(ASF)	RL401	214 0127 003	Relay	RY-12W
C203,204	255 4217 907	Film 100pF/50V	CQ09P1H101J				
C207~209	254 4313 918	Electrolytic 10μF/50V	CE04W1H100M(ASF)				

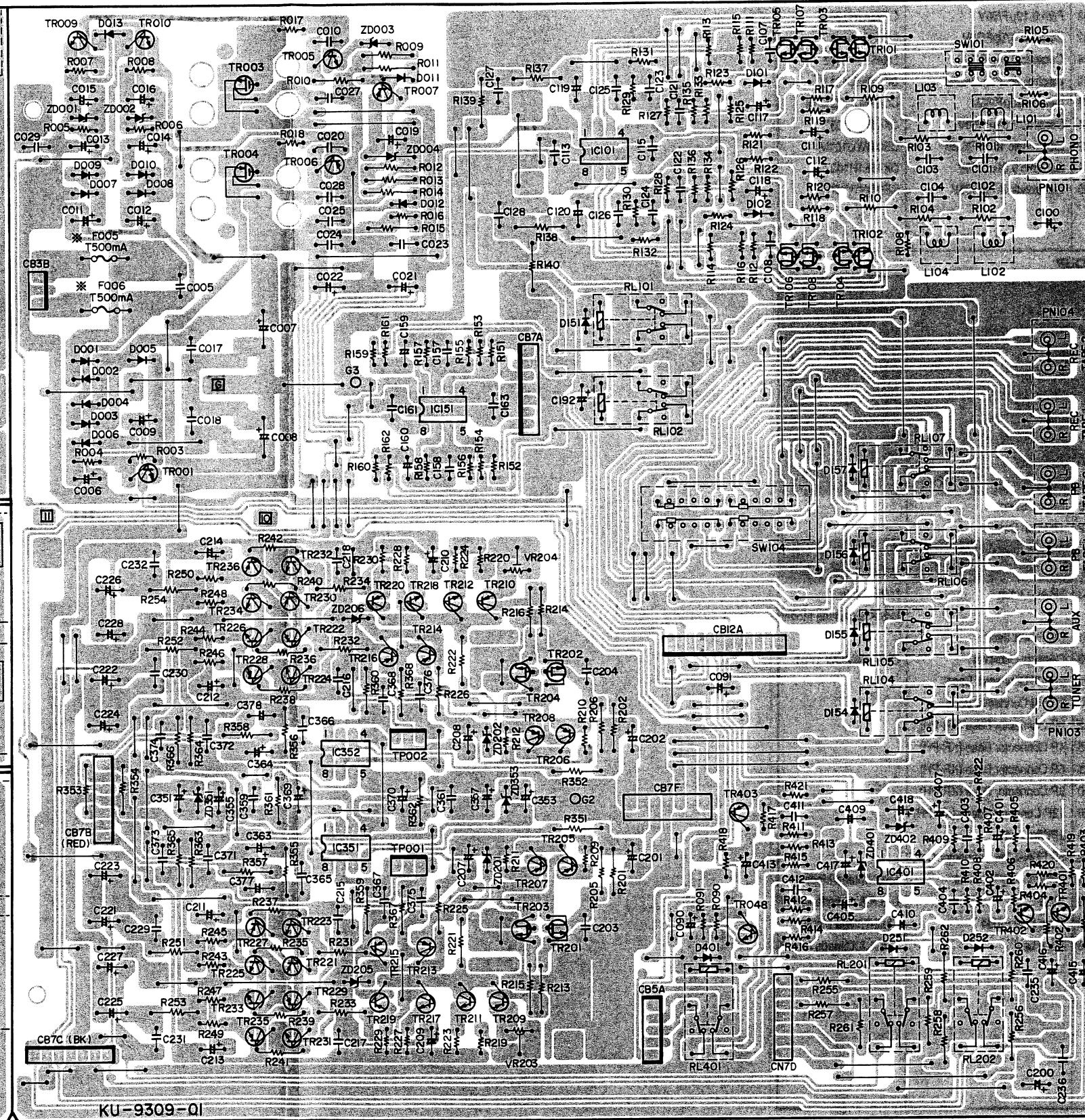
KU-9310B CONTROL UNIT

Ref. No.	Part No.	Part Name	Remarks	Ref. No.	Part No.	Part Name	Remarks
SW101	212 4728 004	1P Push Switch	MM/MC	SEMICONDUCTORS GROUP			
SW104	212 2619 005	Slid Switch(4-4) Remote	REC OUT	IC001	263 0960 000	IC AN78M12F	+12v
SW301	212 2615 012	1P Push Switch	TONE	IC002	263 0979 004	IC AN78M06F	+6v
BN151,152	205 0634 000	3P Cannon Connector		IC003	263 0535 008	IC M51954AL	Reset
BN201,202	205 0428 009	3P Cannon Connector		IC004	262 1579 303	IC HD404304A13P	Micom
PN101	204 8225 007	2P Connector Base		IC005	263 0476 002	IC LA1639	Motor Driver
PN102	204 8410 003	2P Pin Jack	C-GND	IC006	499 0150 008	IC SBX1610-52	Remote Sensor
PN103,104	204 8288 002	6P Connector Base	TEST POINT	TR030	269 0024 902	Transistor RN2201(4.7K-4.7K)	
PN201	204 8255 007	2P Coconnector Base		TR031	269 0025 901	Transistor RN1202(10K-10K)	
TP001,002	205 0190 036	3P NH Connector Base		TR032,033	269 0067 901	Transistor RN1205(2.7K-47K)	
CB3B	205 0190 036	3P NH Connector Base		TR034	273 0317 906	Transistor 2SC2458(BL)	
CB4A	205 0343 045	4P Connector Base (KR-PH)		TR035	271 0191 906	Transistor 2SA1048(GR)	
CB5A,CN5A	205 0233 058	5P NH Connector Base		TR036	273 0317 906	Transistor 2SC2458(BL)	
CB6A	205 0696 064	JN Connector (BT-E)	Blue	TR037	274 0111 901	Transistor 2SD1111	
CN6A	205 0748 054	JN Connector	Red	TR038	269 0024 902	Transistor RN2201(4.7K-4.7K)	
CB7A	205 0233 074	7P NH Connector Base		TR039	269 0025 901	Transistor RN1202(10K-10K)	
CB7B	205 0277 072	7P NH Connector Base	Red	TR040	274 0111 901	Transistor 2SD1111	
CB7C	205 0278 071	7P NH Connector Base	Black	TR041~047	269 0025 901	Transistor RN1202(10K-10K)	
CB7D	205 0190 078	7P NH Connector Base		TR049	269 0024 902	Transistor RN2201(4.7K-4.7K)	
CB7F	205 0696 077	JN Connector (BT-E)		D030~048	276 0432 903	Diode 1SS270A	
CB12A	205 0375 026	12P Connector Base (KR-PH)		ZD001	276 0463 901	Zener Diode HZS6C-1	
CN7A	204 2375 034	7P EH-SCN Connector Coed		LD001	393 9491 004	LED MSL1216W	Power LED
CN7B	204 2375 047	7P EH-SCN Connector Coed		LD002~007	393 9514 907	LED SEL1210S	
CN7C	204 2375 050	7P EH-SCN Connector Coed		RESISTORS GROUP (Not included Carbon Film ±5% 1/4W)			
CN7D	204 2680 017	7P NH-SCN Connector Coed		△ R032,033	244 2043 908	Metal oxide 680ohm 1W	RS14B3A681JNBS(S)
CN7F	205 0748 077	JN Connector	Red				
ST001,002	205 0452 017	Style Pin					
	202 0040 909	Fuse Clip		CAPACITORS GROUP			
	513 9374 039	Fuse Label F005	U.S.A. & Canada Model	△ C001,002	253 8014 702	Ceramic 0.01μF/400VAC	CK45F2GAC103MC
	513 9362 054	Fuse Label F006	U.S.A. & Canada Model	C003	256 1034 979	Film 0.1μF/50V	CF93A1H104J

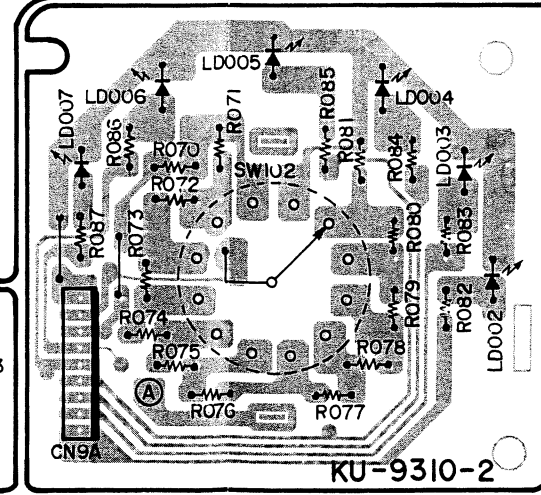
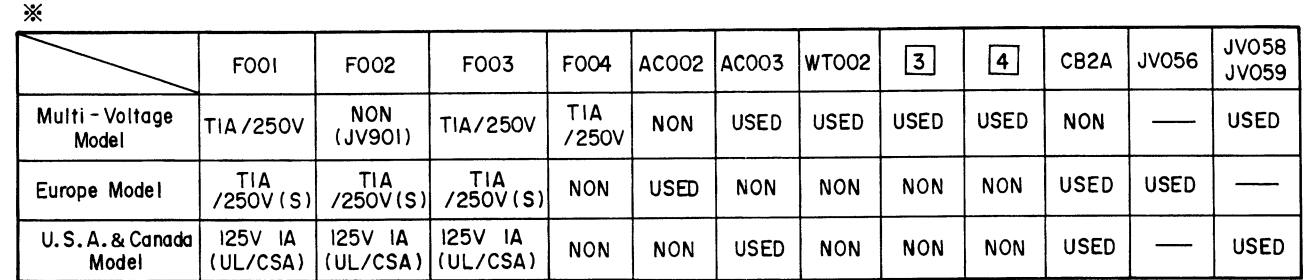
Ref. No.	Part No.	Part Name	Remarks
C045	254 4260 922	Electrolytic 0.33μF/50V	CE04W1HR33M
C046	256 1034 982	Film 0.12μF/50V	CF93A1H124J
C047	253 4452 902	Ceramic 470pF/50V	CC45SL1H471J
C048	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103Z
C049	254 4250 929	Electrolytic 100μF/6.3V	CE04W0J101M
C050	255 1265 978	Film 0.022μF/50V	CQ93M1H223J(B)
C051	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103Z
C052	254 4250 929	Electrolytic 100μF/6.3V	CE04W0J101M
C053	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103Z
C054	254 4258 905	Electrolytic 4.7μF/35V	CE04W1V4R7M
<b>OTHERS PARTS GROUP</b>			
△RL001	214 0142 004	Relay TV-5	
△F-001-003	206 1015 029	Fuse 1A	Europe Model
△F-001	208 1060 074	Fuse 1A (250V)	Multi-Voltage Model
△F-001	206 1039 034	FUSE 1A (125A)	U.S.A. & Canada Model
△F-002	206 1046 027	FUSE 5A (125A)	U.S.A. & Canada Model
△F-003	206 1053 007	Fuse 1A (125A)	Multi-Voltage Model
△F-003	206 1039 034	Fuse 1A (125A)	U.S.A. & Canada Model
△F-004	208 1060 074	Fuse 1A (250V)	Multi-Voltage Model
	202 0040 909	Fuse Clip	
△SW001	212 1031 008	Power Switch TV-5	
SW102	212 0332 009	Rotary Switch	
SW103	212 2615 012	1P Push Switch	
△AC002	203 3950 002	3P AC Outlet (POLARIZED)	Europe Model (Except for U.K.)
AC002	203 3946 003	3P AC Outlet	Multi-Voltage, U.S.A. & Canada Model
DJ001,002	204 8289 001	DC Power Jack	
XL001	399 0191 903	Ceramic Oscillator	CST4.00MGW-TF01
CB2A	205 0581 001	2P VH Connector Base	
CB3A	205 0190 036	3P NH Connector Base	
CB3C,CN3C	205 0343 032	3P Connector Base (KR-PH)	
CN4A	205 0343 045	4P Connector Base (KR-PH)	
CB6B,CN6B	205 0343 061	6P Connector Base (KR-PH)	
CB9A,CN9A	205 0343 090	9P Connector Base (KR-PH)	
CN12A	205 0375 026	12P Connector Base (KR-PH)	
A-GND	009 9037 013	1PWire Ass'y	
CN2B-2B	203 5042 002	3P SDN-SDN Connector Cord	
WT002	205 0606 025	2PWrapping Terminal	Multi-Voltage Model
	513 9374 013	Fuse Lael	U.S.A. & Canada Model
	513 9354 004	Fuse Lael F-004	Multi-Voltage Model
	513 9374 068	Fuse Lael	U.S.A. & Canada Model



## E











## PARTS LIST EXPLODED VIEW

Ref.No.	Part No.	Part Name	Remarque	Q'ty	Ref.No.	Part No.	Part Name	Remarque	Q'ty
1	KU-9309 B	PRE AMP UNIT ASS'Y	Europe Model	1	8	206 1039 021	FUSE 0.5A (125V) F005,006	U.S.A. & Canada Model	2
1-1	—	EQ & FLAT AMP UNIT			9	513 9374 039	FUSE LABEL	U.S.A. & Canada Model	1
1-2	—	MEIN VOL. UNIT			10	513 9362 054	FUSE LABEL	U.S.A. & Canada Model	1
1-3	—	TONE UNIT			11	412 9433 004	VR BRACKET		1
1-4	—	TONE SW. UNIT			12	112 0643 003	VR KNOB JOINT (B)		1
1-5	—	H.P JACK UNIT			13	204 8225 007	2P CONNECTOR BASE	PN101,102	2
1-6	—	BAL. IN UNIT			14	203 3946 003	3P AC OUTLET(POLARIZED)	Multi-Voltage, U.S.A. & Canada Models	1
1-7	—	BAL. OUT UNIT			14	203 3950 002	3P AC OUTLET	Europe Model (except U.K.)	1
1	KU-9309 D	PRE AMP UNIT ASS'Y	Multi-Voltage Model	1	15	204 8289 001	DC POWER JACK		2
1-1	—	EQ & FLAT AMP UNIT			16	417 0297 105	HEAT SINK		1
1-2	—	MEIN VOL. UNIT			17	206 1015 029	FUSE 1.0A F-001	Europe Model	1
1-3	—	TONE UNIT			17	206 1060 074	FUSE 1.0A (250V) F-001	Multi-Voltage Model	1
1-4	—	TONE SW. UNIT			17	206 1039 034	FUSE 1.0A F-001	U.S.A. & Canada Model	1
1-5	—	H.P JACK UNIT			18	206 1015 029	FUSE 1.0A F-002	Europe Model	1
1-6	—	BAL. IN UNIT			18	—	JV901	Multi-Voltage Model	1
1-7	—	BAL. OUT UNIT			18	206 1046 027	FUSE 5.0A (125V) F-002	U.S.A. & Canada Model	1
1	KU-9309 E	PRE AMP UNIT ASS'Y	U.S.A. & Canada Model	1	19	206 1015 029	FUSE 1.0A F-003	Europe Model	1
1-1	—	EQ & FLAT AMP UNIT			19	206 1053 007	FUSE 1.0A F-003	Multi-Voltage Model	1
1-2	—	MEIN VOL. UNIT			19	206 1039 034	FUSE 1.0A F-003	U.S.A. & Canada Model	1
1-3	—	TONE UNIT			20	206 1060 074	FUSE 1.0A (250V) F-004	Multi-Voltage Model	1
1-4	—	TONE SW. UNIT			21	513 9374 013	FUSE LABEL F001	U.S.A. & Canada Model	1
1-5	—	H.P JACK UNIT			22	513 9374 068	FUSE LABEL F002	U.S.A. & Canada Model	1
1-6	—	BAL. IN UNIT			23	513 9374 013	FUSE LABEL F003	U.S.A. & Canada Model	1
1-7	—	BAL. OUT UNIT			24	513 9354 004	FUSE LABEL F004	Multi-Voltage Model	1
2	KU-9310 B	CONTROL UNIT ASS'Y	Europe Model	1	25	214 0142 004	RELAY TV-6		1
2-1	—	MICOM & POWER UNIT			26	233 9670 002	POWER TRANS	Europe Model	1
2-2	—	INPUT SEL. UNIT			26	233 9673 009	POWER TRANS	Multi-Voltage Model	1
2-3	—	CD INPUT SW. UNIT			26	233 9674 008	POWER TRANS	U.S.A. & Canada Model	1
2-4	—	POWER SW. UNIT			27	412 9434 100	TRANS BRACKET		1
2-5	—	SENSOR/LED UNIT			28	144 9208 200	FRONT PANEL ASS'Y		1
2	KU-9310 D	CONTROL UNIT ASS'Y	Multi-Voltage Model	1	29	499 0150 008	REMOTE SENSOR	SBX1610-52	1
2-1	—	MICOM & POWER UNIT			30	143 0568 001	FILTER		1
2-2	—	INPUT SEL. UNIT			31	143 9174 001	LENS(P)		1
2-3	—	CD INPUT SW. UNIT			32	204 8480 004	HEAD PHONE JACK(SW)		1
2-4	—	POWER SW. UNIT			33	212 2615 012	1P PUSH SWITCH	TONE,CD NOR/BAL	2
2-5	—	SENSOR/LED UNIT			34	113 9304 100	PUSH BUTTON ASS'Y		2
2	KU-9310 E	CONTROL UNIT ASS'Y	U.S.A. & Canada Model	1	35	211 9113 022	VARIABLE 30kohm	V0920V20FC303K	1
2-1	—	MICOM & POWER UNIT			36	211 9113 035	VARIABLE 5kohm	V0920V20FC502K	1
2-2	—	INPUT SEL. UNIT			37	211 9127 005	VARIABLE 20kohm	V0920V20FS203-	1
2-3	—	CD INPUT SW. UNIT			38	203 0226 085	1P CONTACT ASS'Y		1
2-4	—	POWER SW. UNIT			39	445 0048 003	CORD HOLDER		1
2-5	—	SENSOR/LED UNIT			41	212 0332 009	ROTARY SWITCH		1
3	204 8288 002	6P CONNECTOR BASE		2	42	009 9037 013	1PWIRE ASS'Y		4
4	212 4728 004	1P PUSH SWITCH	MMMC	1	43	112 9127 106	KNOB ASS'Y (B)		1
5	212 2619 005	SLIDE SWITCH(4-4) REMOTE	REC OUT	1	44	112 9123 100	KNOB ASS'Y (M)		1
6	212 0207 024	ROTARY REMOTE (A) SWITCH		1					
7	417 0307 008	HEAT SINK		1					
8	206 1015 003	FUSE (0.5A) F005,006	Europe Model	2					
8	206 1057 029	FUSE 0.5A (125V) F005,006	Multi-Voltage Model	2					

PACKING AND ACCESSORIES  
(not included EXPLODED VIEW)

Ref.No.	Part No.	Part Name	Remarque	Q'ty	Ref.No.	Part No.	Part Name	Remarque	Q'ty
45	112 9125 108	KNOB ASS'Y (F)		1	504 9102 003	STYLEN PAPER			1
46	114 9024 108	BEARING		1	505 9102 006	POLY COVER			1
47	112 9129 104	VR KNOB JOINT		1	504 0092 003	STYLEN PAPER			1
48	211 9128 004	VARIABLE 50kohm	V2720V20FA503	1	503 9572 005	CUSHION			1
49	212 1031 008	POWER SWITCH TV-5		1	501 9265 019	CARTON CASE			1
50	113 9303 101	POWER BUTTON ASS'Y		1	505 8006 019	ENVELOPE			1
51	411 9132 205	FRONT CHASSIS		1	511 9385 006	OPERATING INSTRUCTIN	Europe, U.S.A. & Canada Models		1
52	105 9252 206	REAR PANEL	Europe Model	1	511 9402 002	OPERATING INSTRUCTIN	Multi-Voltage Model		1
52	105 9252 219	REAR PANEL	Multi-Voltage Model	1	515 0671 106	DENON SERVICE NETWORK LIST			1
52	105 9252 222	REAR PANEL	U.S.A. & Canada Model	1	206 2130 000	AC CORD WITH CONNECTOR & PLUG	Multi-Voltage Model		1
53	203 3962 003	AC INLET	Multi-Voltage Model	1	202 0044 002	PLUG ADAPTOR	Multi-Voltage Model		1
54	212 0363 007	VOLTAGE SELECTOER	Multi-Voltage Model	1	515 8030 008	PRESET LABEL	Multi-Voltage Model		1
55	445 0020 005	CORD BUSH(4K-4)	Europe, U.S.A. & Canada Models	1	204 8121 004	2P PIN CORD			1
56	206 2063 009	AC CORD WITH PLUG	Europe Model	1	399 0284 107	REMOTE CONTROL UNIT	RC-185		1
56	206 2060 002	AC CORD (POLARIZED)	U.S.A. & Canada Model	1					
57	205 0071 016	TERMINAL ASS'Y		1					
58	411 9137 103	SIDE CHASSIS ASS'Y		1					
59	411 9136 007	SIDE CHASSIS		1					
60	411 9135 008	CENTER CHASSIS		1					
61	412 9205 009	CENTER FRAME		1					
62	105 9255 009	BOTTOM COVER		1					
63	104 9044 000	FOOT ASS'Y		4					
64	102 9048 000	TOP COVER		1					
65	122 9006 004	SPACER		1					
66	461 9001 001	RUBBER SHEET		2					
67	461 0390 012	RUBBER SHEET		4					
68	412 9440 000	SWITCH BRACKET		1					
70	275 0090 009	TRANSISTOR 2SK1998		1					
71	275 0089 007	TRANSISTOR 2SJ248		1					
72	205 0428 009	3P CANNON CONNECTOR	BN201,202	2					
73	205 0634 000	3P CANNON CONNECTOR	BN151,152	2					
74	204 8410 003	2P PIN JACK(C-GND)	PN102	1					
SCREWS									
100	471 3304 015	SCREW 3x8		2					
101	473 8007 025	CPU SCREW 3x8 (S)		6					
102	473 7002 021	TAPING SCREW 3x8 (S) Black	Multi-Voltage Model	2					
103	473 7015 018	TAPING SCREW 3x8 (S) Black	Multi-Voltage Model	44					
103	473 7015 018	TAPING SCREW 3x8 (S) Black	Europe, U.S.A. & Canada Model	42					
104	473 7002 034	TAPING SCREW 3x6 (S) Black		2					
105	477 0064 107	FIXING SCREW	Europe Model	11					
105	477 0064 107	FIXING SCREW	Multi-Voltage, U.S.A. & Canada Model	9					
106	473 7007 000	TAPING SCREW 4x8 (S) Black		8					
107	473 7500 044	TAPING SCREW 3x8 (P) Brack		13					
108	471 9043 008	SPECIAL SCREW		8					
109	477 0018 001	WASHER	P-87	1					
110	476 1004 008	4E RING		2					
111	475 6138 002	M9 VR NUT		4					



# SCHEMATIC DIAGRAM

1

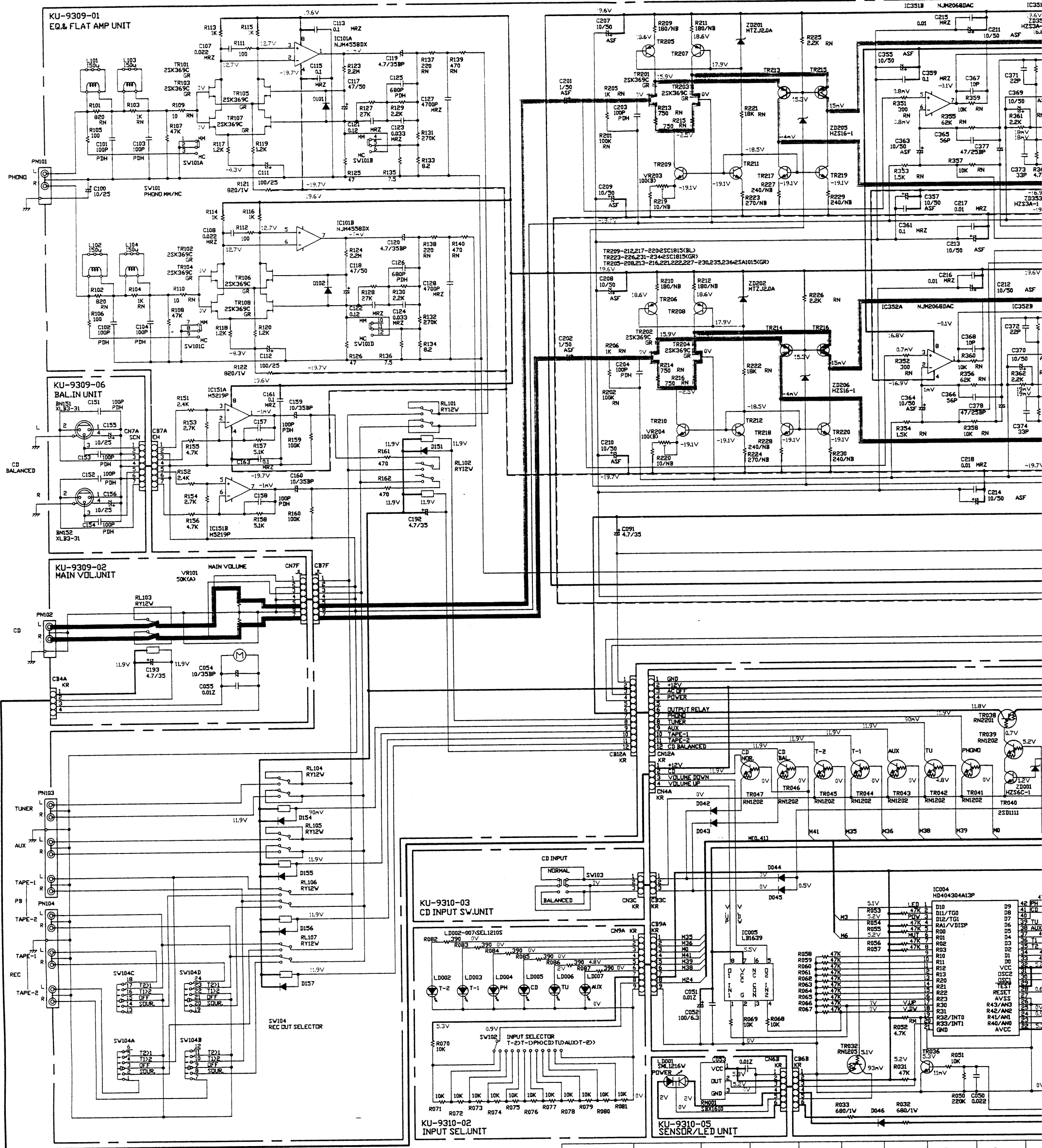
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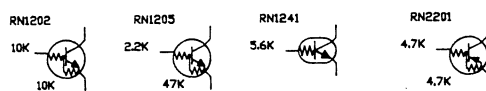
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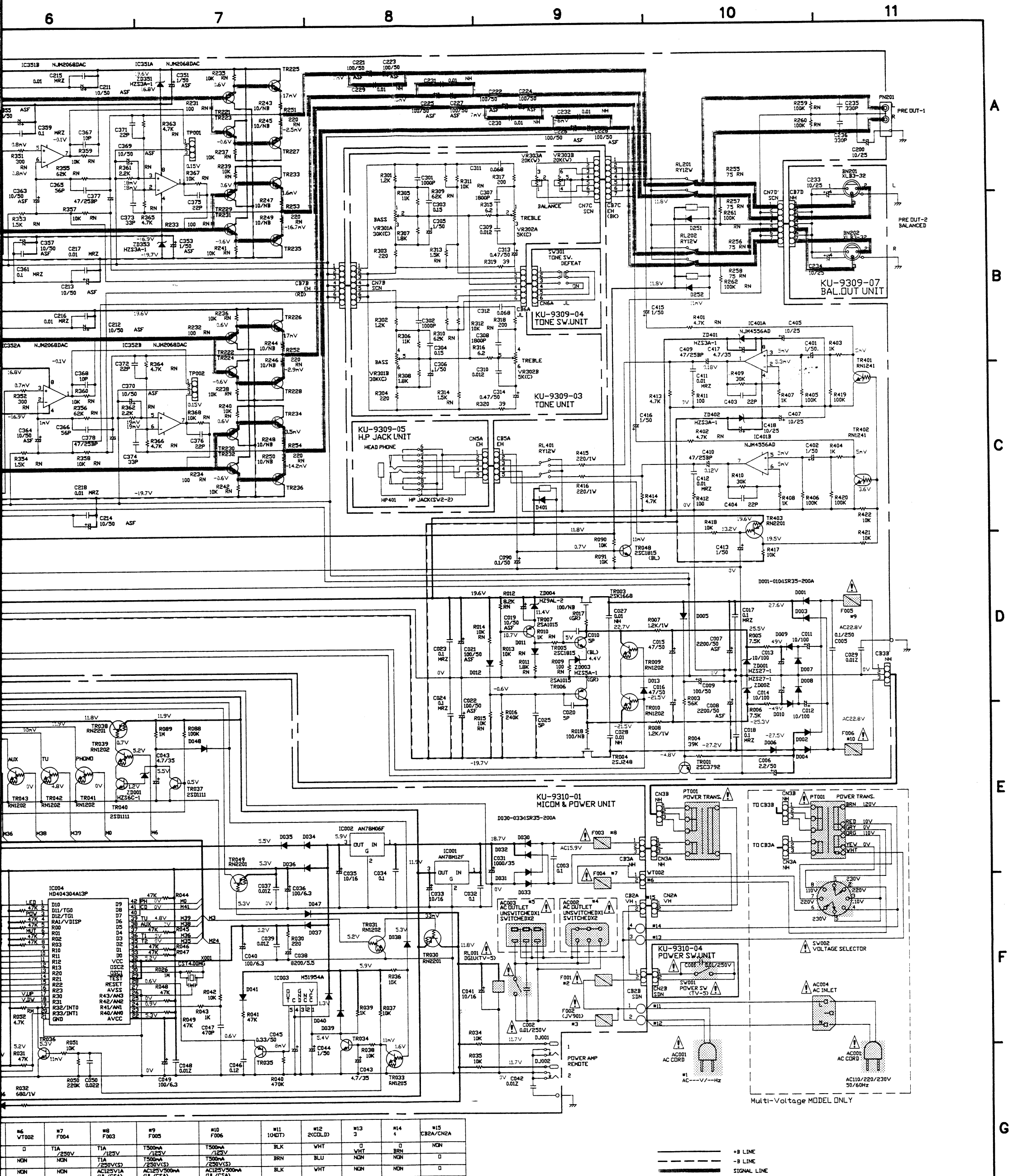
6



NOTES  
UNDESIGNATED DIODE IS 1SS270A.  
UNDESIGNATED PNP TRANSISTOR IS 2SA1048(GR).  
UNDESIGNATED NPN TRANSISTOR IS 2SC2458(BL).



	#1 POWER SUPPLY	#2 F001	#3 F002	#4 AC002	#5 AC003	#6 VT002	#7 F004	#8 F003	#9 F001
Multi-Voltage (E1)	-	T1A /250V	(JUMPER) JV901	NON	0	0	T1A /250V	T1A /125V	T5C
Europe (E2)	AC230V/50Hz	T1A /250V(S)	T1A /250V(S)	0	NON	NON	NON	NON	T5C /250V(S)
U.S.A. & Canada (E3)	AC120V/60Hz	AC125V1A (UL/CSA)	AC125V1A (UL/CSA)	NON	0	NON	NON	NON	AC125V1A (UL/CSA)



**WARNING:**  
Parts marked with this symbol have critical characteristics. Use ONLY replacement parts recommended by the manufacturer.

**CAUTION:**  
Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 240 kohms, the unit is defective.

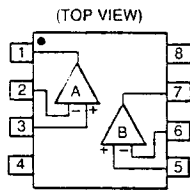
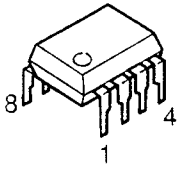
**WARNING:**  
DO NOT return the unit to the customer until the problem is located and corrected.

**NOTES**  
ALL RESISTANCE VALUES IN OHM. K=1,000 OHM, M=1,000,000 OHM  
ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD  
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.  
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

## SEMICONDUCTORS

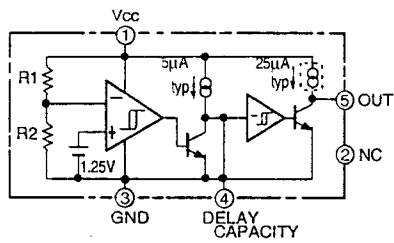
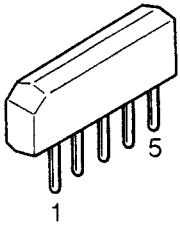
## ● IC's

M5219P (IC101, IC151)  
 NJM2068DAC (IC351, IC352)  
 NJM4556D (IC401)

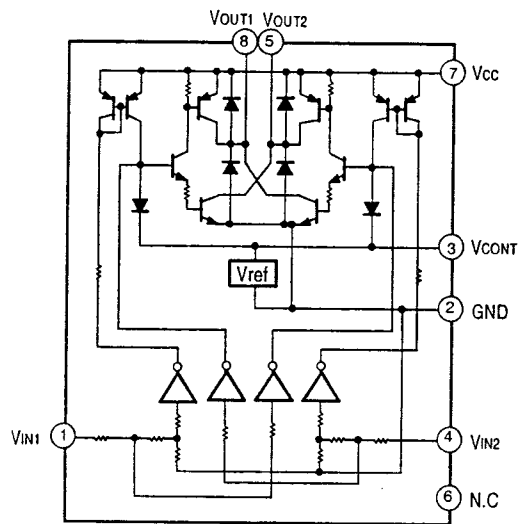
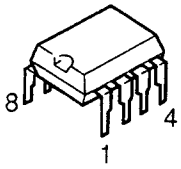


1. A OUTPUT
2. A-INPUT
3. A+INPUT
4. V-
5. B+INPUT
6. B-INPUT
7. B OUTPUT
8. V+

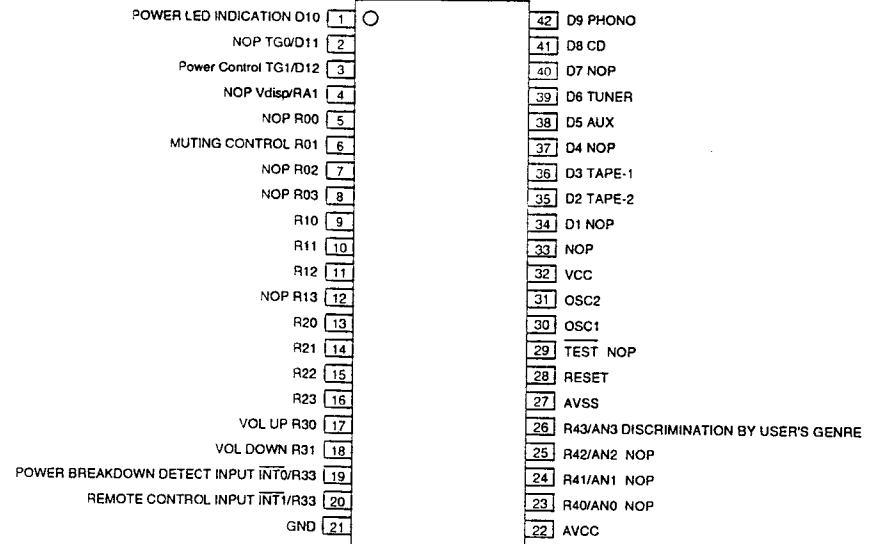
M51954A (IC003)



LB1639 (IC005)



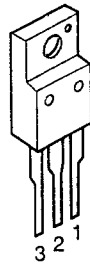
HD404304A13P (IC004)



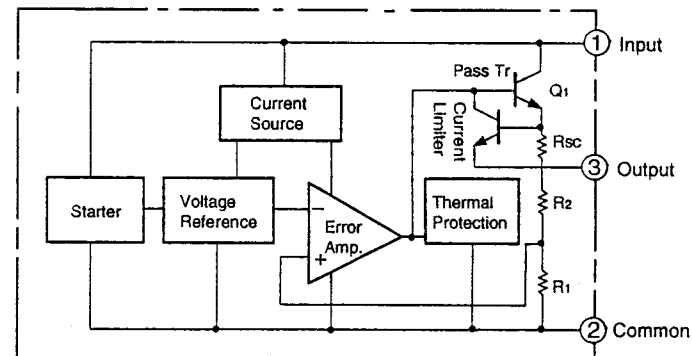
HD404304A13P (IC004) Term

Pin No.	Name	I/O	
1	D10	O	POWER L
2	TG0/D11	O	NOP
3	TG1/D12	O	Power Co
4	Vdisp/RA1	I	NOP
5	R00	O	NOP
6	R01	O	Muting Co
7	R02	O	NOP
8	R03	O	NOP
9	R10	O	NOP
10	R11	O	NOP
11	R12	O	NOP
12	R13	O	NOP
13	R20	I	NOP
14	R21	I	NOP
15	R22	I	NOP
16	R23	I	NOP
17	R30	O	Volume C
18	R31	O	Volume C
19	INT0/R32	I	Power Bre
20	INT1/R33	I	Remote o
21	GND		GND
22	AVcc		Avcc (Vcc
23	R40/AN0	I	NOP
24	R41/AN1	I	NOP
25	R42/AN2	I	NOP
26	R43/AN3	I	Discrimin
27	AVss		AVss (GN
28	RESET	I	M51954A
29	TEST		Vcc
30	OSC1		Celler Fil
31	OSC2		Celler Fil
32	Vcc		Vcc
33	D0	O	NOP
34	D1	O	NOP
35	D2	O	TAPE-2 C
36	D3	O	TAPE-1 C
37	D4	O	NOP
38	D5	O	AUX Cont
39	D6	O	TUNER C
40	D7	O	NOP
41	D8	O	CD Contr
42	D9	O	PHONO C

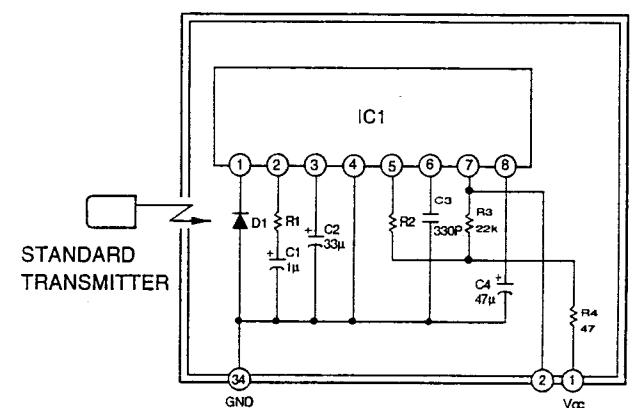
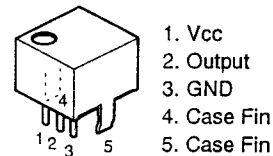
AN78M06F (IC002)  
 AN78M12F (IC001)



- 1: Input
- 2: Common
- 3: Output



SBX1610-52 (Remote Control Receiver) (IC053)



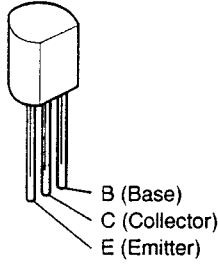


HD404304A13P (IC004) Terminal Function

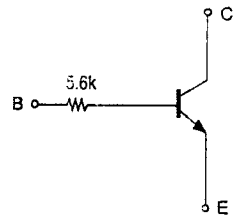
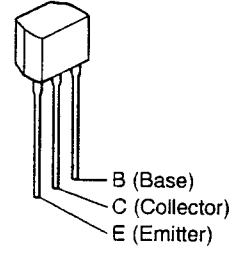
Pin No.	Name	I/O	Contents	Active
1	D10	O	POWER LED indication	H
2	TG0/D11	O	NOP	
3	TG1/D12	O	Power Control (REMOTE Power-ON/OFF)	L
4	Vdss/RA1	I	NOP	
5	R00	O	NOP	
6	R01	O	Muting Control (Power ON-OFF, Function Shifting, MUTING)	L
7	R02	O	NOP	
8	R03	O	NOP	
9	R10	O	NOP	
10	R11	O	NOP	
11	R12	O	NOP	
12	R13	O	NOP	
13	R20	I	NOP	
14	R21	I	NOP	
15	R22	I	NOP	
16	R23	I	NOP	
17	R30	O	Volume Control "UP" → "H"	H
18	R31	O	Volume Control "DOWN" → "H"	H
19	INT0/R32	I	Power Breakdown detect input	
20	INT1/R33	I	Remote control signal decoding input	
21	GND		GND	
22	AVcc		Avcc (Vcc)	
23	R40/AN0	I	NOP	
24	R41/AN1	I	NOP	
25	R42/AN2	I	NOP	
26	R43/AN3	I	Discrimination port by user's genre	
27	AVss		AVss (GND)	
28	RESET		M51954A: External	
29	TEST		Vcc	
30	OSC1		Celler Fill Oscillator 4MHz: External	
31	OSC2		Celler Fill Oscillator 4MHz: External	
32	Vcc		Vcc	
33	D0	O	NOP	
34	D1	O	NOP	
35	D2	O	TAPE-2 Control	H
36	D3	O	TAPE-1 Control	H
37	D4	O	NOP	
38	D5	O	AUX Control	H
39	D6	O	TUNER Control	H
40	D7	O	NOP	
41	D8	O	CD Control	H
42	D9	O	PHONO Control	H

## TRANSISTORS

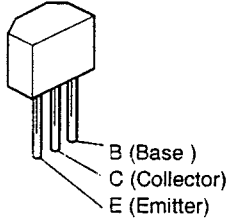
2SC1815 (BL)  
2SA1015 (GR)  
2SC3792



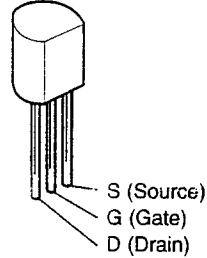
RN1241



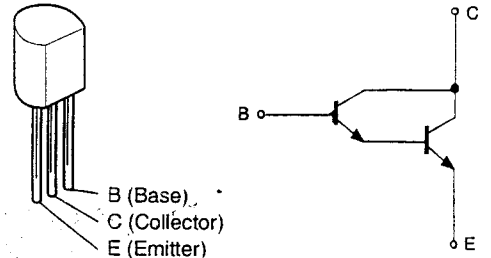
2SA1048 (GR)  
2SC2458 (BL)



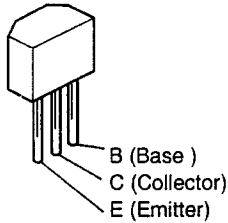
2SK369 (BL)/(GR)-C



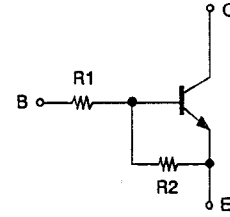
2SD1111



RN1202 (10k-10k)  
RN1205 (2.2k-47k)  
RN2201 (4.7k-4.7k)

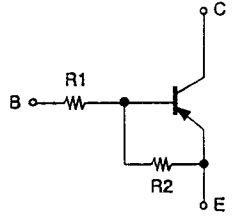


RN1202 (10k-10k)  
RN1205 (2.2k-47k)



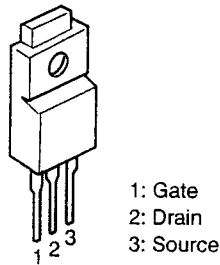
	R1	R2
RN2202	10kohm	10kohm
RN1205	2.2kohm	47kohm

RN2201 (4.7k-4.7k)

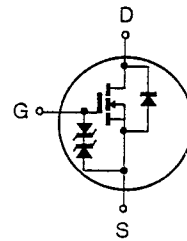


	R1	R2
RN2201	4.7kohm	4.7kohm

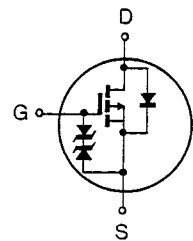
2SK1668  
2SJ248



2SK1668

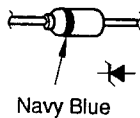


2SJ248

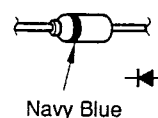


## DIODES (Included LED)

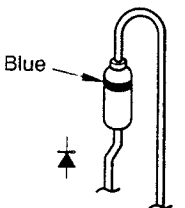
HZ9LA-2 HZS16-1  
HZS3A-1 HZS27-1  
HZS5A-1 MTZJ2.0A  
HZS6C-1 SFOR1A42



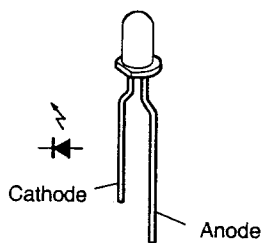
1SS270A



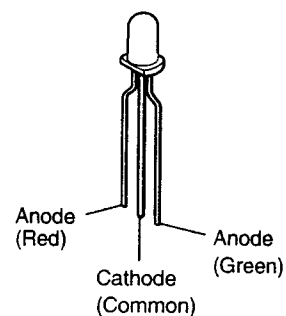
1SR35-200A



LED  
SEL1210S (RED)



SWL1216W (LED)



IC1 : CX20106A Chip  
D1 : PIN Photo Diode Chip  
C1,C2,C4 : Aluminum Electrolytic Capacitor  
C3 : SL Characteristic  $\pm 5\%$   
R1 : Gain Adjuster  
R2 : fo Adjuster  $\pm 1\%$  USE  
R3,4 :  $\pm 5\%$